AMENDMENTS TO THE CLAIMS

Please cancel claims 2, 3, 8, 9, and 12 without prejudice or disclaimer.

Please amend claims 1, 4-7, 10, and 11 as follows.

1. (Currently Amended) A corneal surgery apparatus for ablating a cornea of a patient's eye by irradiation of a laser beam, the apparatus comprising:

an irradiation optical system for irradiating the laser beam onto the cornea;

image-pickup means for picking up an image of an anterior-segment of the eye;

characteristic point detection means for detecting characteristic points common to a first anterior-segment image of the eye picked up in a condition where measurement data for determining corneal ablation data of the eye is obtained and a second anterior-segment image of the eye picked up by the image-pickup means before ablation of the cornea, the second anterior-segment image including images of marks provided for the eye;

first torsion-detection means for obtaining a first torsion-error angle of the second anterior-segment image with respect to the first anterior-segment image based on the characteristic points in the first and second anterior-segment images;

first torsion-correction means for correcting the first torsion-error angle before the ablation of the cornea;

mark detection means for ~~processing the obtained image of the anterior segment and detecting a mark provided to the eye~~ detecting the mark images common to the second anterior-segment image and a third anterior-segment image of the eye picked up by the image-pickup means during the ablation of the cornea, the third anterior-segment image including the mark images;

~~reference position setting means for setting a reference position in which the mark being detected is to be positioned; and~~

second torsion-detection means for obtaining ~~torsion information on the eye based on the detected mark and the set reference position~~ a second torsion-error angle of the third anterior-segment image with respect to the second anterior-segment image based on the mark images in the second and third anterior-segment images; and

second torsion-correction means for correcting the second torsion-error angle during the ablation of the cornea.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The corneal surgery apparatus according to claim ~~2~~ 1, ~~wherein the reference position setting means sets the reference position based on~~ further comprising input means for inputting the first ~~image of the~~ anterior-segment ~~from~~ image picked up by an image-pickup unit of an ophthalmic apparatus for obtaining the measurement data~~, the ophthalmic apparatus having image pickup means for picking up the image of the anterior segment~~.

5. (Currently Amended) The corneal surgery apparatus according to claim ~~2~~ 1, further comprising display means for displaying the first and second ~~images of the~~ anterior-segment images,

wherein the ~~reference position setting~~ characteristic points detection means includes designation means for designating the characteristic ~~point common to each of~~ points based on the displayed images.

6. (Currently Amended) The corneal surgery apparatus according to claim 1, further comprising display means for displaying information on at least one of the obtained first and second torsion~~information~~-error angles.

7. (Currently Amended) The corneal surgery apparatus according to claim 1, ~~further comprising:~~ wherein at least one of the first and second torsion-correction means include rotation means for rotating an irradiation position of the laser beam ~~presented by the irradiation optical system~~ with respect to the eye relatively~~; and~~

~~rotation control means for controlling the rotation means based on the obtained torsion~~

~~information~~.

8. (Canceled)

9. (Canceled)

10. (Currently Amended) The corneal surgery apparatus according to claim 1, further comprising irradiation control means for performing ON/OFF control of the irradiation of the laser beam based on information on the obtained second torsion ~~information~~-error angle.

11. (Currently Amended) A corneal surgery apparatus for ablating a cornea of a patient's eye by irradiation of a laser beam, the apparatus comprising:

an irradiation optical system for irradiating the laser beam onto the cornea;

an image-pickup unit which picks up an image of an anterior-segment of the eye;

a characteristic point detection unit which detects characteristic points common to a first anterior-segment image of the eye picked up in a condition where measurement data for determining corneal ablation data of the eye is obtained and a second anterior-segment image of the eye picked up by the image-pickup unit before ablation of the cornea, the second anterior-segment image including images of marks provided for the eye;

a first torsion-detection unit which obtains a first torsion-error angle of the second anterior-segment image with respect to the first anterior-segment image based on the characteristic points in the first and second anterior-segment images;

a first torsion-correction unit which corrects the first torsion-error angle before the ablation of the cornea;

a mark detection unit which ~~processes the obtained image of the anterior-segment and detects a mark provided to the eye~~ detects the mark images common to the second anterior-segment image and a third anterior-segment image of the eye picked up by the image-pickup unit during the ablation of the cornea, the third anterior-segment image including the mark images;

~~a reference position setting unit which sets a reference position in which the mark being~~

~~detected is to be positioned; and~~

a second torsion-detection unit which obtains ~~torsion information on the eye based on the detected mark and the set reference position~~a second torsion-error angle of the third anterior-segment image with respect to the second anterior-segment image based on the mark images in the second and third anterior-segment images; and

a second torsion-correction unit which corrects the second torsion-error angle during the ablation of the cornea.

12. (Canceled)